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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/855,208	05/14/2001	Nanette C. Jensen	10013325-1	9811

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EXAMINER

WEST, JEFFREY R

ART UNIT PAPER NUMBER

2857

DATE MAILED: 06/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/855,208

Applicant(s)

JENSEN ET AL.

Examiner

Jeffrey R. West

Art Unit

2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
-Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 21-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 21-23 recite "setting an operating current for the LED to the first current if the difference breaches the predefined difference threshold." While the use of the word "breaches" in this context is unclear, it is considered by the Examiner to be synonymous with "exceeds". Given this definition, the specification is not enabling because it describes the process as comparing the current sensor values to previous sensor values to determine whether the new values are greater than the previous values by a predetermined percentage increase. If the current sensor values are greater than the prior sensor values by the predetermined increase (i.e. breaches the predetermined threshold) the current subroutine proceeds to block 298 where a conditional function is executed. On the other hand, if the percent increase has not been achieved (i.e. does not breach the predetermined threshold) then the current subroutine proceeds to block 300 in which the current for the present light

emitting diode is set to the previous setting (Instant Specification, page 13, lines 8-21).

Therefore, it can be seen that the instant specification describes setting an operating current for the LED to the first current if the difference does not breach the predefined difference threshold. For this reason it is unclear to one having ordinary skill in the art to use the invention as claimed and therefore the claims are rejected under 35 U.S.C. 112, first paragraph.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 21-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 21-23 recite "setting an operating current for the LED to the first current if the difference breaches the predefined difference threshold." These limitations are considered vague and indefinite because "breach" is generally defined as an infraction or violation of a law, obligation, tie, or standard and it is therefore inconsistent with the other claim language.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,995,243 to Kerschner et al. in view of U.S. Patent Application Publication No. 2001/0026011-A1 to Roberts et al. and U.S. Patent No. 4,982,203 to Uebbing et al.

Kerschner discloses an illumination system with white level calibration for hand-held scanners comprising a processing circuit having a processor and a memory ("24" and "26" in Figure 10) and an LED current control circuit coupled to the processor circuit and the LED (i.e. Pulse-Width Modulation Circuit, "53" in Figure 10) wherein the current control circuit, manipulated by the microprocessor logic (i.e. program) (column 8, lines 47-49), applies a first current for a first time period to generate a light output (column 9, lines 9-25) detected by a sensor array (i.e. photosensitive detector) that generates a signal representing the light output of the LEDs when illuminated (column 1, line 59 to column 2, line 6). Kerschner discloses comparing the light output intensity to a predefined threshold and, upon determining that the measured light intensity is greater than the predefined threshold, altering the current pulse width (i.e. time period) to decrease the light output intensity and, upon determining that the measured light intensity is less than the predefined threshold, altering the current pulse width to increase the light output intensity (column 5, lines

45-62). Kerschner then discloses directing the current driver to apply the altered current value to measure a second light output intensity and repeating the comparing, altering, and applying steps until the predefined threshold (i.e. optimum output) is reached (column 5, lines 62-65).

Further, since Kerschner discloses comparing the light intensity to detect a condition of the sensors reaching a white point/level indicating a maximum white digital value, and since it is well-known in the art that the saturation levels of the light sensors correspond to the maximum white level, and Applicant suggests a relationship between determining the saturation of a sensor and its corresponding white level, on page 4, lines 4-6 (Figure 8), page 8, lines 27-32, page 9, line 30 to page 10, line 7, Kerschner also discloses using the comparison to detect when the white point/saturation level of the sensors is achieved.

Kerschner, however, discloses altering (i.e. incrementing or decrementing) the current pulse-width to alter the LED intensities, not altering the actual electrical current value. Kerschner also discloses comparing the output value to the predetermined threshold rather than comparing the difference between first and second light outputs to the threshold to alter the current values by a predefined percentage.

Roberts teaches radiation emitter devices, preferably LEDs (abstract), for use in scanning devices (0010) including the well-known property of a linear response between applied electrical current and output intensity (0078).

Uebbing teaches a method and apparatus for improving the uniformity of an LED printhead by compensating for the degradation in light output of a plurality of LEDs (column 4, lines 66-68) comprising obtaining the light output measures of two different pulse-width values and comparing the difference between these values to determine the percentage increase, of the second measure relative the first measure, needed to meet the desired output level deviation/difference (in this case zero) (column 5, lines 1-22).

It would have been obvious to one having ordinary skill in the art to modify the invention of Kerschner to include altering (i.e. incrementing or decrementing) the actual electric current value to alter the LED intensities, as taught by Roberts, because Robert suggests a well known intensity control method, as would be applicable in the invention of Kerschner, that can control the intensities simply over a wide range of operating conditions (0078).

It would have been obvious to one having ordinary skill in the art to modify the invention of Kerschner to include comparing the difference between first and second light outputs to the threshold to alter the current values by a predefined percentage, as taught by Uebbing, because while the invention of Kerschner requires a trial-and-error repetition method to obtain a desired output, the invention of Uebbing suggests a method that would quickly and accurately determine the required change in intensity, and corresponding current modification, with minimal time and effort (column 5, lines 1-32).

Although the invention of Uebbing only teaches determining a percentage increase, the combination of Kerschner and Uebbing would result in determining a percentage increase or decrease as needed to obtain the optimum output.

Further, although not specifically disclosed, it is considered inherent that the program executed by the microprocessor must be stored in some corresponding memory.

Response to Arguments

7. Applicant's arguments filed 17 March 2003 have been fully considered but they are not persuasive.

Applicant argues that the combination of Kerschner, Roberts, and Uebbing does not teach detecting a saturation of the sensors in the sensor array using the comparison operation. The Examiner maintains that the combination of Kerchner, Roberts, and Uebbing teaches comparing the intensity signal to a target white point value to detect when the sensor intensity reaches the white point value, wherein the white point value corresponds to a maximum digital value. The instant specification, along with cited pertinent art, suggests or describes the general knowledge that a white value corresponds to the maximum intensity that the sensors can measure before saturating. Therefore, the combination of Kerschner, Roberts, and Uebbing meets the claimed limitation for detecting a saturation of the sensors.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

U.S. Patent Application Publication No. 2002/0159098 to Kleiman teaches a hyperspectral system for capturing graphical images including a curve illustrating the electrical response of a light sensor when saturated by white light at a "white point" (0059).

U.S. Patent No. 5,166,811 to Nagano teaches an image data processing apparatus including a CCD sensor wherein the CCD sensor converts a received light ray into an analog electric signal and outputs a voltage indicating a white level saturation voltage (column 3, line 60 to column 4, line 10).

U.S. Patent Application Publication No. 2002/0002410 to Tomita et al. teaches an information acquisition method and apparatus including a photo-detection element that saturates at different white levels (Abstract, 0059, and Figure 11).

U.S. Patent No. 5,103,490 to McMillin teaches a method and apparatus for storing and merging multiple optically scanned images including a background level index set near a saturation-white level (column 9, lines 41-45).

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey R. West whose telephone number is (703)308-1309. The examiner can normally be reached on Monday through Friday, 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (703)308-1677. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7382 for regular communications and (703)308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

jrw
May 23, 2003

